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EXAMINER	
MYINT, DENNIS Y	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/687,218	TOSEY, JOSEPH PETER	
	Examiner	Art Unit	
	DENNIS MYINT	2162	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 January 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *See Continuation Sheet* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-9, 13-17, 21-28, 32-36, 40-53, 57-61, 65-72, 76-80, 84-97, 101-116, and 120-206* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Continuation of Disposition of Claims: Claims pending in the application are 1-9,13-17,21-28,32-36,40-53,57-61,65-72,76-80,84-97,101-116 and 120-206.

DETAILED ACTION

1. This is in response to Applicant's REQUEST TO REOPEN PROSECUTION under 37 CFR 41.39(b)(1) filed on 01/12/2009.

2. Claims 1-9, 13-17, 21-28, 32-36, 40-53, 57-61, 65-72, 76-80, 84-97, 101-116, and 120-206 are currently pending in this application. In the amendment filed on January 12, 2009, claims 1-9, 13-17, 21-28, 32-36, 40-53, 57-61, 65-72, 76-80, 84-97, 101-116, and 120-206 were amended. Claims 18-20, 37-39, 62-64, and 81-83 were cancelled. Claims 1, 13, 17, 21, 25, 28, 32, 36, 40, 44, 45, 57, 61, 65, 69, 72, 76, 80, 84, 86, 89, 101, 105, 106, 109, 113, 116, 120, 124, 125, 128, 132, 133, 142, 146, 147, 151, 154, 155, 159, 160, 164, 165, 174, 178, 179, 183, 186, 187, 191, 192, 196, 197, 199, 201, 203, and 205 are independent claims. **This office action is made final.**

3. In light of the cancellation of claims 18-20, 37-39, 62-64, and 81-83 and amendments made to claims 197 and 199, rejection of the claims under 35 U.S.C. 101 in the Examiner's Answer issued on November 12, 2008, is hereby withdrawn.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which the subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claim 1, 2, 13, 16-17, 21, 24-28, 32, 35-36, 40, 43, 45, 46, 57, 60-61, 65, 68-72, 76, 79-81, 84, 87, 89, 90, 101, 104-106, 109, 112-116, 120, 123-125, 128, 131, 133, 134, 142, 145-147, 150-155, 158-160, 163, 165, 166, 174, 177-179, 182-187, 190-192, and 195 are rejected under 35 U.S.C. 103(a) as being unpatentable over Li (U.S. Patent Number 5774588) in view of Welch (U.S. Patent Application Number 2004/0097246).

As per claim 1, Li is directed to a method for creating a keyword string database (Li, Column 6 Line 10-21, i.e., *A Lexicon and An example of such a lexicon would be a list of city names in the United States, which could contain about 45,000 valid entries*), and teaches the limitations:

"determining one or more candidate keyword strings to store in the database" (Li, Column 6 Line 40-50, i.e. "*valid lexicon strings (such as legal and correct city names)*..");

"for each of the one more candidate keyword strings, creating single bit vector based at least in part on the each of one or more candidate keyword strings" (Li, Figure 2: *Fold to Signature Vector 210;* and Column 6 Line 40 through Column 9 Line 35, i.e., *"non-positional bi-gram for the lexicon entry string 20"* and *The vector 22 is folded at step 210 by examining each sequential group of 8 bits and assigning it a 1 or 0 depending on whether any of the bi-grams in the group was previously "set" (had a value of 1)*"), **"the bit vectors for use in comparing an input bit vector with the bit vectors to indicate whether an input keyword string**

represented by the input bit vector matches the one or more candidate keyword strings" (Li, Column 9 Line 39 through Column 13 Line 62); and

"storing the one or more bit vectors" (Li, Column 7, Line 1-3, i.e., *Signature Vector*") and "a reference to the one or more candidate keyword strings in the database" (Li, Figure 2, *Store **pointers** to Lexicon Entries in Bucket Address Table 240*).

Li does not explicitly teach the limitations: "(a method for creating a keyword string database) on a wireless user device" and "the keyword string provided by a user of the wireless user device".

On the other hand, Welch is directed to "**a method for creating a keyword string database on a wireless user device" and "the keyword string provided by a user of the wireless user device**" (Welch, Paragraph 0026, i.e., *In further embodiments, the broadcast media receiver 10 and/or the wireless terminal 20 are configured to determine whether one or more keywords or other criteria are present in the textual data;* Figure 1: *20*; Paragraph 0025, i.e., *In other embodiments, the user may store the textual data **in** the wireless terminal 20 for future reference;* and Paragraph 0026, i.e., *In some embodiments, the textual data may be searched for the name of a television show, a person's name, a telephone number or logical network address, a text string that may by identified by a user, program instruction, and/or software code*).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to combine the method of Welch, which creates keyword string database on a wireless user device, with the method of Li, which determines keywords,

creates bit vectors, and stores the bit vectors and references to the key words, so that the combined method would create a keyword string database on a wireless user device and determine keywords, create bit vectors, stores the bit vectors and references to the keywords. One would have been motivated to do so in order to enable users to store the textual data on a wireless device and search the textual data using keywords (Welch, Paragraphs 0025-0026).

As per claim 2, Li teaches the limitation:

"wherein the bit vector further comprises at least one bit that represents a non-alphanumeric symbol" (Li, Column 6 Line 43-47, i.e. *All lower case letters were mapped to their upper case letters, all between word spaces are stripped, and all non-alphanumeric characters are mapped to a selected specific non-alphanumeric characters (for example, "?")).* It is inherent that those non-alphanumeric will be represented in the signature vector, which represents the original string. (Li, Column 7, Line 1-3, i.e., Signature *Vector*).

As per claim 13, Welch in view of Li is directed to **"a method for incremental keyword search on a wireless user device"** (Welch, Paragraph 0026, i.e., *In further embodiments, the broadcast media receiver 10 and/or the wireless terminal 20 are configured to determine whether one or more keywords or other criteria are present in the textual data;* Figure 1: *20*) and teaches the limitations:

"receiving from the user of the wireless user device an input keyword string comprising one or more words comprising one or more symbols" (Li, Column 6 Line 10-21, Column 6 Line 40 through Column 9 Line 35);

"creating a single bit vector based at least in part on the input keyword string" (Li, Figure 2: *Fold to Signature Vector 210;* and Column 6 Line 40 through Column 9 Line 35, i.e., *"non-positional bi-gram for the lexicon entry string 20"* and *The vector 22 is folded at step 210 by examining each sequential group of 8 bits and assigning it a 1 or 0 depending on whether any of the bi-grams in the group was previously "set" (had a value of 1)";* and Li Column 8 Line 51 through Column 9 Line 58);

"comparing the bit vector with one or more other bit vectors representing at least one candidate keyword string to create a set of matching bit vectors" (Li, Column 8 Line 51 through Column 9 Line 36);

"applying a conventional keyword matching algorithm" ("comparing vectors") to the at least one candidate keyword string represented by the set of matching bit vectors" (Li, Column 9 Line 58 through Column 13 Line 62) ; and

"presenting any matching candidate keyword strings" (Li, Figure 2, "Output Final Candidate List" 155).

As per claim 16, Welch in view of Li is directed the method of claim 13 and teaches the limitation:

"wherein the comparing is independent of the order of keyword prefixes in keyword strings" (Li, Column 8 50 through Column 9 Line 59). Note that, in the method and system of Li, *between-word spaces in input strings are stripped* (Column 6 Line 40-50), the input strings are partitioned and hashed, then formed into bi-gram bit vectors and finally transformed into a signature vector (Li, Column 6, Line 40 through Column 7 Line 3). As such, the method of Li is capable of comparing input string independent of the order of keyword prefixes.

As per claim 17, Welch in view of Li is directed to "a method for creating a keyword string database on a wireless user device" (Welch, Paragraph 0026, i.e., *In further embodiments, the broadcast media receiver 10 and/or the wireless terminal 20 are configured to determine whether one or more keywords or other criteria are present in the textual data;* Figure 1: *20*) and teaches the limitations:

"determining one or more candidate keyword strings to store in the database" (Li, Column 6 Line 40-50, i.e. "valid lexicon strings (such as legal and correct city names)....."");

"for each of the one or more candidate keyword strings,

creating a single bit vector based at least in part on the each of the one or more candidate keyword strings" (Li, Figure 2: *Fold to Signature Vector 210;* and Column 6 Line 40 through Column 9 Line 35, i.e., *"non-positional bi-gram for the lexicon entry string 20"* and *The vector 22 is folded at step 210 by examining each sequential group of 8 bits and assigning it a 1 or 0 depending on whether any of the bi-*

grams in the group was previously "set" (had a value of 1), **"the bit vector having a bit position for each symbol in an alphabet and having bits set for bit positions corresponding to at least one symbol representing the first symbol of a word in the each of the one or more candidate keyword strings"** (Li, Column 6 Line 40 through Column 9 Line 35), **"the bit vectors for use in comparing an input bit vector with the one or more bit vectors to indicate whether an input keyword string represented by the input bit vector matches the one or more candidate keyword strings"** (Li, Column 8 Line 51 through Column 9 Line 36); and

"storing the one or more bit vectors and a reference to the one or more candidate keyword strings in the database" (Li, Column 7, Line 1-3, i.e. "Signature Vector" and Li, Figure 2, "Store pointers to Lexicon Entries in Bucket Address Table" 240).

As per claim 21, Li in view of Welch is directed to "a method for incremental keyword search on a wireless user device" (Welch, Paragraph 0026, i.e., *In further embodiments, the broadcast media receiver 10 and/or the wireless terminal 20 are configured to determine whether one or more keywords or other criteria are present in the textual data;* Figure 1: *20*) and teaches the limitations:

"receiving an input keyword string from the user of the wireless user device comprising one or more words comprising one or more symbols" (Li, Column 6 Line 10-21, Column 6 Line 40 through Column 9 Line 35);

"creating a single bit vector based at least in part on the input keyword string" (Li, Figure 2: *Fold to Signature Vector 210;* and Column 6 Line 40 through Column 9 Line 35, i.e., *"non-positional bi-gram for the lexicon entry string 20"* and *The vector 22 is folded at step 210 by examining each sequential group of 8 bits and assigning it a 1 or 0 depending on whether any of the bi-grams in the group was previously "set" (had a value of 1)*), **"the bit vector having a bit position for each symbol in an alphabet and having bits set for positions corresponding to at least one symbol representing the first symbol of a word in the input keyword string"** (Li, Column 6 Line 40 through Column 9 Line 35);

"comparing the bit vector with one or more other bit vectors representing at least one candidate keyword string to create a set of matching bit vectors" (Li, Column 8 Line 51 through Column 9 Line 36);

"applying a conventional keyword matching algorithm to the at least one candidate keyword string represented by the set of matching bit vectors" (Li, Column 9 Line 58 through Column 13 Line 62); and

"presenting any matching candidate keyword strings" (Li, Figure 2, "Output Final Candidate List" 155).

Claim 24 is rejected on the same basis as claim 16.

As per claim 25, Li in view of Welch is directed to "a method for comparing keyword strings on a wireless user device" (Welch, Paragraph 0026, i.e., *In further embodiments, the broadcast media receiver 10 and/or the wireless terminal 20 are*

configured to determine whether one or more keywords or other criteria are present in the textual data; Figure 1: *20*) and teaches the limitations:

"determining a relative frequency of use for at least one symbol in a language" (Li, Column 7 Line 4-40, i.e. "frequency table");

"assigning a statistical weighting" (*A counter is accumulated ...*) **"to the at least one symbol based at least in part on a relative frequency of use of the at least one symbol"** (Li, Column 7 Line 4-40);

"assigning each of the at least one symbol to one of a plurality of groups" (Li, Column 7 Line 4-40, "first group");

"comparing a first keyword string and a second keyword string based at least in part on whether at least one symbol of the first keyword string is assigned to the same group as at least one corresponding symbol of the second keyword string" (Li, Column 8 Line 51 through Column 9 Line 36);

"presenting a result of the comparing to a user of the wireless user device" (Welch, Paragraph 0026).

As per claim 26, Li in view of Welch is directed to the method of claim 25 and teaches the limitations:

"wherein the assigning further comprises assigning each of the at least one symbol to one of a plurality of groups so as to minimize the difference between the sums of statistical weightings for symbols comprising each group in the plurality of groups" (Li, Column 7 Line 4-40, *groups*).

As per claim 27, Li in view of Welch is directed to the method of claim 25 and teaches the limitation:

"wherein the relative frequency of use comprises the relative frequency of use of symbols in the first character of words in the language" (Li, Column 7 Line 4-40).

As per claim 28, Li in view of Welch is directed to "a method for creating a keyword string database on a wireless user device" (Welch, Paragraph 0026, i.e., *In further embodiments, the broadcast media receiver 10 and/or the wireless terminal 20 are configured to determine whether one or more keywords or other criteria are present in the textual data;* Figure 1: *20*), and teaches the limitations:

"determining one or more candidate keyword strings to store in the database" (Li, Column 6 Line 40-50, i.e., *valid lexicon strings (such as legal and correct city names)*…..);

"creating one or more bit vectors based at least in part on the one or more candidate keyword strings" (Li, Column 6 Line 40 through Column 9 Line 35), **"each bit of the one or more bit vectors corresponding to one or more symbols in an alphabet, bits having a bit position corresponding to the first symbol of a word in the one or more candidate keyword strings being set"** (Li, Column 6 Line 40 through Column 9 Line 35), **"the one or more bit vectors for use in comparing an input bit vector with the one or more bit vectors to indicate whether an input**

keyword string represented by the input bit vector matches the one or more candidate keyword strings" (Li, Column 8 Line 51 through Column 9 Line 36); and

"storing the one or more bit vectors and a reference to the one or more candidate keyword strings in the database" (Li, Column 7, Line 1-3 and Li, Figure 2, *Store pointers to Lexicon Entries in Bucket Address Table* 240).

As per claim 32, Li in view of Welch is directed to "a method for incremental keyword search on a wireless user device" (Welch, Paragraph 0026, i.e., *In further embodiments, the broadcast media receiver 10 and/or the wireless terminal 20 are configured to determine whether one or more keywords or other criteria are present in the textual data;* Figure 1: *20*) and teaches the limitations:

"receiving from a user of the wireless user device an input keyword string comprising one or more words comprising one or more symbols, each symbol representing the first symbol of a word in a search string" (Li, Column 6 Line 10-21, Column 6 Line 40 through Column 9 Line 35);

"creating a single bit vector based at least in part on the input keyword string, each bit corresponding to one or more symbols in an alphabet, bits having a bit position corresponding to the one or more symbols being set" (Li, Figure 2: *Fold to Signature Vector 210;* and Column 6 Line 40 through Column 9 Line 35, i.e., *"non-positional bi-gram for the lexicon entry string 20"* and *The vector 22 is folded at step 210 by examining each sequential group of 8 bits and assigning it a 1 or 0*

depending on whether any of the bi-grams in the group was previously "set" (had a value of 1); and also see Li, Column 8 Line 51 through Column 9 Line 58);

"**comparing the bit vector with one or more other bit vectors representing at least one candidate keyword string to create a set of matching bit vectors"** (Li, Column 8 Line 51 through Column 9 Line 36);

"**applying a conventional keyword matching algorithm to the at least one candidate keyword string represented by the set of matching bit vectors"** (Li, Column 9 Line 58 through Column 13 Line 62); and

"presenting any matching candidate keyword strings" (Li, Figure 2, "Output Final Candidate List" 155).

Claim 35 is rejected on the same basis as claim 16.

As per claim 36, Li in view of Welch is directed to "a method for creating a keyword string database on a wireless user device" (Welch, Paragraph 0026, i.e., *In further embodiments, the broadcast media receiver 10 and/or the wireless terminal 20 are configured to determine whether one or more keywords or other criteria are present in the textual data;* Figure 1: *20*) and teaches the limitations:

"determining one or more candidate keyword strings to store in the database" (Li, Column 6 Line 40-50, i.e., *valid lexicon strings (such as legal and correct city names).....*);

"creating one or more bit vectors based at least in part on the one or more candidate keyword strings" (Li, Column 6 Line 40 through Column 9 Line 35), "each bit of the one or more bit vector corresponding to one or more symbols in an alphabet, bits having a bit position corresponding to a symbol of a prefix of a word in the one or more candidate keyword strings being set" (Li, Column 6 Line 40 through Column 9 Line 35**), "the one or more bit vectors for use in comparing an input bit vector with the one or more bit vectors to indicate whether an input keyword string represented by the input bit vector matches the one or more candidate keyword strings**" (Li, Column 8 Line 51 through Column 9 Line 36); and

"storing the one or more bit vectors and a reference to the one or more candidate keyword strings in the database" (Li, Column 7, Line 1-3, i.e., *Signature Vector* and Li, Figure 2: *Store pointers to Lexicon Entries in Bucket Address Table* 240).

As per claim 40, Li in view of Welch is directed to "a method for incremental keyword search on a wireless user device" (Welch, Paragraph 0026, i.e., *In further embodiments, the broadcast media receiver 10 and/or the wireless terminal 20 are configured to determine whether one or more keywords or other criteria are present in the textual data;* Figure 1: *20*) and teaches the limitations:

"receiving from a user of the wireless user device an input keyword string comprising one or more words comprising one or more symbols" (Li, Column 6 Line 10-21, Column 6 Line 40 through Column 9 Line 35);

"creating a single bit vector based at least in part on the input keyword string" (Li, Figure 2: *Fold to Signature Vector 210;* and Column 6 Line 40 through Column 9 Line 35, i.e., *"non-positional bi-gram for the lexicon entry string 20"* and *The vector 22 is folded at step 210 by examining each sequential group of 8 bits and assigning it a 1 or 0 depending on whether any of the bi-grams in the group was previously "set" (had a value of 1);* and also see Li, Column 8 Line 51 through Column 9 Line 58), "each bit corresponding to one or more symbols in an alphabet, bits having a bit position corresponding to a prefix of a word in the one or more symbols being set" (Li, Column 6 Line 40 through Column 9 Line 35);

"comparing the bit vector with one or more other bit vectors representing at least one candidate keyword string to create a set of matching bit vectors" (Li, Column 8 Line 51 through Column 9 Line 36);

"applying a conventional keyword matching algorithm to the at least one candidate keyword string represented by the set of matching bit vectors" (Li, Column 9 Line 58 through Column 13 Line 62); and

"presenting any matching candidate keyword strings" (Li, Figure 2: *Output Final Candidate List 155*).

Claim 43 is rejected on the same basis as claim 16.

Claim 45 is rejected on the same basis as claim 1.

Claim 46 is rejected on the same basis as claim 2.

Claim 57 is rejected on the same basis as claim 13.

Claim 60 is rejected on the same basis as claim 16.

Claim 61 is rejected on the same basis as claim 17.

Claim 65 is rejected on the same basis as claim 21.

Claim 68 is rejected on the same basis as claim 16.

Claim 69 is rejected on the same basis as claim 25.

Claim 70 is rejected on the same basis as claim 26.

Claim 71 is rejected on the same basis as claim 27.

Claim 72 is rejected on the same basis as claim 28.

Claim 76 is rejected on the same basis as claim 32.

Claim 79 is rejected on the same basis as claim 16.

Claim 80 is rejected on the same basis as claim 36.

Claim 81 is rejected on the same basis as claim 37.

Claim 84 is rejected on the same basis as claim 40.

Claim 87 is rejected on the same basis as claim 16.

Claim 89 is essentially the same as claim 1 except that it set forth the claimed invention as a program storage device readable by a machine rather than a method for creating a keyword string database and rejected for the same reasons as applied hereinabove.

Claim 90 is essentially the same as claim 2 except that it set forth the claimed invention as a program storage device readable by a machine rather than a method for creating a keyword string database and rejected for the same reasons as applied hereinabove.

Claim 101 is essentially the same as claim 13 except that it set forth the claimed invention as a program storage device readable by a machine rather than a method for incremental keyword search on a wireless user device and rejected for the same reasons as applied hereinabove.

Claim 104 is essentially the same as claim 16 except that it set forth the claimed invention as a program storage device readable by a machine rather than a method for incremental keyword search on a wireless user device and rejected for the same reasons as applied hereinabove.

Claim 105 is essentially the same as claim 17 except that it set forth the claimed invention as a program storage device readable by a machine rather than a method for creating a keyword string database and rejected for the same reasons as applied hereinabove.

Claim 106 is essentially the same as claim 18 except that it set forth the claimed invention as a program storage device readable by a machine rather than a method for incremental keyword search on a wireless user device and rejected for the same reasons as applied hereinabove.

Claim 109 is essentially the same as claim 21 except that it set forth the claimed invention as a program storage device readable by a machine rather than a method for incremental keyword search on a wireless user device and rejected for the same reasons as applied hereinabove.

Claim 112 is essentially the same as claim 16 except that it set forth the claimed invention as a program storage device readable by a machine rather than a method for incremental keyword search on a wireless user device and rejected for the same reasons as applied hereinabove.

Claim 113 is essentially the same as claim 25 except that it set forth the claimed invention as a program storage device readable by a machine rather than a method for comparing strings on a wireless user device on a wireless user device and rejected for the same reasons as applied hereinabove.

Claim 114 is essentially the same as claim 26 except that it set forth the claimed invention as a program storage device readable by a machine rather than a method for comparing strings on a wireless user device on a wireless user device and rejected for the same reasons as applied hereinabove.

Claim 115 is essentially the same as claim 27 except that it set forth the claimed invention as a program storage device readable by a machine rather than a method for comparing strings on a wireless user device on a wireless user device and rejected for the same reasons as applied hereinabove.

Claim 116 is essentially the same as claim 28 except that it set forth the claimed invention as a program storage device readable by a machine rather than a method for creating a keyword string database and rejected for the same reasons as applied hereinabove.

Claim 120 is essentially the same as claim 21 except that it set forth the claimed invention as a program storage device readable by a machine rather than a method for incremental keyword search on a wireless user device and rejected for the same reasons as applied hereinabove.

Claim 123 is essentially the same as claim 16 except that it set forth the claimed invention as a program storage device readable by a machine rather than a method for incremental keyword search on a wireless user device and rejected for the same reasons as applied hereinabove.

Claim 124 is essentially the same as claim 36 except that it set forth the claimed invention as a program storage device readable by a machine rather than a method for creating a keyword string database on a wireless user device and rejected for the same reasons as applied hereinabove.

Claim 125 is essentially the same as claim 37 except that it set forth the claimed invention as a program storage device readable by a machine rather than a method for incremental keyword search on a wireless user device and rejected for the same reasons as applied hereinabove.

Claim 128 is essentially the same as claim 40 except that it set forth the claimed invention as a program storage device readable by a machine rather than a method for incremental keyword search on a wireless user device and rejected for the same reasons as applied hereinabove.

Claim 131 is essentially the same as claim 43 except that it set forth the claimed invention as a program storage device readable by a machine rather than a method for incremental keyword search on a wireless user device and rejected for the same reasons as applied hereinabove.

Claim 133 is essentially the same as claim 1 except that it set forth the claimed invention as an apparatus for creating a keyword string database on a wireless user device rather than a method for creating a keyword string database and rejected for the same reasons as applied hereinabove.

Claim 134 is essentially the same as claim 2 except that it set forth the claimed invention as an apparatus for creating a keyword string database on a wireless user device rather than a method for creating a keyword string database and rejected for the same reasons as applied hereinabove.

Claim 142 is essentially the same as claim 13 except that it set forth the claimed invention as an apparatus for creating a keyword string database on a wireless user device rather than a method for incremental keyword search on a wireless user device and rejected for the same reasons as applied hereinabove.

Claim 145 is essentially the same as claim 16 except that it set forth the claimed invention as an apparatus for creating a keyword string database on a wireless user device rather than a method for incremental keyword search on a wireless user device and rejected for the same reasons as applied hereinabove.

Claim 146 is essentially the same as claim 17 except that it set forth the claimed invention as an apparatus for creating a keyword string database on a wireless user device rather than a method for creating a keyword string database and rejected for the same reasons as applied hereinabove.

Claim 147 is essentially the same as claim 18 except that it set forth the claimed invention as an apparatus for creating a keyword string database on a wireless user device rather than a method for incremental keyword search on a wireless user device and rejected for the same reasons as applied hereinabove.

Claim 150 is essentially the same as claim 16 except that it set forth the claimed invention as an apparatus for creating a keyword string database on a wireless user device rather than a method for incremental keyword search on a wireless user device and rejected for the same reasons as applied hereinabove.

Claim 151 is essentially the same as claim 25 except that it set forth the claimed invention as an apparatus for comparing keyword strings on a wireless user device rather than a method for comparing keyword strings on a wireless user device on a wireless user device and rejected for the same reasons as applied hereinabove.

Claim 152 is essentially the same as claim 26 except that it set forth the claimed invention as an apparatus for comparing keyword strings on a wireless user device rather than a method for comparing keyword strings on a wireless user device on a wireless user device and rejected for the same reasons as applied hereinabove.

Claim 153 is essentially the same as claim 27 except that it set forth the claimed invention as an apparatus for comparing keyword strings on a wireless user device rather than a method for comparing keyword strings on a wireless user device on a wireless user device and rejected for the same reasons as applied hereinabove.

Claim 154 is essentially the same as claim 28 except that it set forth the claimed invention as an apparatus for creating a keyword string database on a wireless user device rather than a method for creating a keyword string database and rejected for the same reasons as applied hereinabove.

Claim 155 is essentially the same as claim 32 except that it set forth the claimed invention as an apparatus for incremental keyword search on a wireless user device rather than a method for incremental keyword search on a wireless user device and rejected for the same reasons as applied hereinabove.

Claim 158 is essentially the same as claim 16 except that it set forth the claimed invention as an apparatus for incremental keyword search on a wireless user device rather than a method for incremental keyword search on a wireless user device and rejected for the same reasons as applied hereinabove.

Claim 159 is essentially the same as claim 36 except that it set forth the claimed invention as an apparatus for creating a keyword string database on a wireless user device rather than a method for creating a keyword string database on a wireless user device and rejected for the same reasons as applied hereinabove.

Claim 160 is essentially the same as claim 40 except that it set forth the claimed invention as an apparatus for incremental keyword search on a wireless user device rather than a method for incremental keyword search on a wireless user device and rejected for the same reasons as applied hereinabove.

Claim 163 is essentially the same as claim 16 except that it set forth the claimed invention as an apparatus for incremental keyword search on a wireless user device rather than a method for incremental keyword search on a wireless user device and rejected for the same reasons as applied hereinabove.

Claim 165 is essentially the same as claim 1 except that it set forth the claimed invention as an apparatus for creating a keyword string database on a wireless user device rather than a method for creating a keyword string database and rejected for the same reasons as applied hereinabove.

Claim 166 is essentially the same as claim 2 except that it set forth the claimed invention as an apparatus for creating a keyword string database on a wireless user device rather than a method for creating a keyword string database and rejected for the same reasons as applied hereinabove.

Claim 174 is essentially the same as claim 13 except that it set forth the claimed invention as an apparatus for incremental keyword search on a wireless user device rather than a method for incremental keyword search on a wireless user device and rejected for the same reasons as applied hereinabove.

Claim 177 is essentially the same as claim 16 except that it set forth the claimed invention as an apparatus for incremental keyword search on a wireless user device rather than a method for incremental keyword search on a wireless user device and rejected for the same reasons as applied hereinabove.

Claim 178 is essentially the same as claim 17 except that it set forth the claimed invention as an apparatus for incremental keyword search on a wireless user device rather than a method for incremental keyword search on a wireless user device and rejected for the same reasons as applied hereinabove.

Claim 179 is essentially the same as claim 21 except that it set forth the claimed invention as an apparatus for incremental keyword search rather than a method for incremental keyword search on a wireless user device and rejected for the same reasons as applied hereinabove.

Claim 182 is essentially the same as claim 16 except that it set forth the claimed invention as an apparatus for incremental keyword search on a wireless user device rather than a method for incremental keyword search on a wireless user device and rejected for the same reasons as applied hereinabove.

Claim 183 is essentially the same as claim 25 except that it set forth the claimed invention as an apparatus for comparing keyword strings on a wireless user device rather than a method for comparing keyword strings on a wireless user device on a wireless user device and rejected for the same reasons as applied hereinabove.

Claim 184 is essentially the same as claim 26 except that it set forth the claimed invention as an apparatus for comparing keyword strings on a wireless user device rather than a method for comparing keyword strings on a wireless user device on a wireless user device and rejected for the same reasons as applied hereinabove.

Claim 185 is essentially the same as claim 27 except that it set forth the claimed invention as an apparatus for comparing keyword strings on a wireless user device rather than a method for comparing keyword strings on a wireless user device on a wireless user device and rejected for the same reasons as applied hereinabove.

Claim 186 is essentially the same as claim 28 except that it set forth the claimed invention as an apparatus for creating a keyword string database on a wireless user device rather than a method for creating a keyword string database and rejected for the same reasons as applied hereinabove.

Claim 187 is essentially the same as claim 32 except that it set forth the claimed invention as an apparatus for incremental keyword search on a wireless user device rather than a method for incremental keyword search on a wireless user device and rejected for the same reasons as applied hereinabove.

Claim 190 is essentially the same as claim 16 except that it set forth the claimed invention as an apparatus for incremental keyword search on a wireless user device rather than a method for incremental keyword search on a wireless user device and rejected for the same reasons as applied hereinabove.

Claim 191 is essentially the same as claim 36 except that it set forth the claimed invention as an apparatus for creating a keyword string database on a wireless user device rather than a method for creating a keyword string database on a wireless user device and rejected for the same reasons as applied hereinabove.

Claim 192 is essentially the same as claim 40 except that it set forth the claimed invention as an apparatus for incremental keyword search on a wireless user device rather than a method for incremental keyword search on a wireless user device and rejected for the same reasons as applied hereinabove.

Claim 195 is essentially the same as claim 16 except that it set forth the claimed invention as an apparatus for incremental keyword search on a wireless user device rather than a method for incremental keyword search on a wireless user device and rejected for the same reasons as applied hereinabove.

6. Claim 3-9, 47-53, 91-97, 135-141, and 167-173 are rejected under 35 U.S.C. 103(a) as being unpatentable over Li in view of Welch and further in view of Braun (U.S. Patent Application Publication Number 2004/0064787).

Referring to claim 3, Li in view of Welch teaches that bit vectors of claim 1 comprises at one bit that represents an non-alphanumeric symbol but does not explicitly

disclose the limitation: "wherein the non-alphanumeric symbol indicates an e-mail address".

However, Braun teaches the limitation:

"wherein the non-alphanumeric symbol indicates an e-mail address" (Braun, et al., Paragraph 0049). Braun teaches a method and system for using a digital pen, wherein non-alphanumeric symbols are used to indicate a serial number or a type of form (Braun, et al., Paragraph 0049, i.e. "Additionally, non-alphanumeric characters such as special characters or symbols may be used to enable the back end application to recognize the unique form indication or serial number.").

At the time the invention was made, it would have obvious to a person of ordinary skill in the art to add the feature of using non-alphanumeric symbols to represent other data such as a serial number, as taught by Braun et al, to the method and system of Welch in view of Li so that, in the resultant method and system, the non-alphanumeric symbol(s) would indicate an email. One would have been motivated to do so in order to simply facilitate search operations.

Claims 4-9 are rejected on the same basis as claim 3. Braun teaches a method and system for using a digital pen, wherein non-alphanumeric symbols are used to indicate a serial number or a type of form (Braun, et al., Paragraph 0049, i.e. "Additionally, non-alphanumeric characters such as special characters or symbols may be used to enable the back end application to recognize the unique form indication or serial number."). As such, using symbols to represent/indicate other data, including a

mobile number, a wired number, a paper mail address, a cost ranking, a quality ranking, a cuisine or the like, are taught by Braun.

Claims 47-53 are rejected on the same basis as claims 3-9 respectively.

Claims 91-97 are essentially the same as claim 3-9 except that the claims set forth the claimed invention as a program storage device readable by a machine rather than a method for creating a keyword string database and rejected for the same reasons as applied hereinabove.

Claim 135-141 are essentially the same as claim 3-9 except that the claims set forth the claimed invention as an apparatus for creating a keyword string database on a wireless user device rather than a method for creating a keyword string database and rejected for the same reasons as applied hereinabove.

Claims 167-173 are essentially the same as claim 3-9 except that the claims set forth the claimed invention as an apparatus for creating a keyword string database on a wireless user device rather than a method for creating a keyword string database and rejected for the same reasons as applied hereinabove.

7. Claims 14-15, 22-23, 33-34, 41-42, 58-59, 66-67, 77-78, 85-86, 102-103, 107-108, 110-111, 121-122, 126-127, 129-130, 143-144, 148-149, 156-157, 161-162, 175-

176, 180-181, 188-189, and 193-194 are rejected under 35 U.S.C. 103(a) as being unpatentable over Li in view of Welch and further in view of Albornoz et al. (hereinafter "Albornoz") (U.S. Patent Application Publication Number 2004/0260929).

Referring to claim 14, Li in view of Welch as applied to claim 13 above does not explicitly disclose the limitation: "further comprising preempting the method after a predetermined amount of time".

However, Albornoz teaches the limitation:

"further comprising preempting the method after a predetermined amount of time" (Albornoz, Paragraph 0054). Albornoz teaches a method and system for recovering data object annotations, wherein a searched is ended/preempted after a predetermined amount of time (Albornoz, Paragraph 0054, i.e., *The search continuation a criterion is evaluated 1507 according to a predetermined plan and if the criterion is met, the search continues, otherwise, the search is ended 1508. An example continuation is to perform the search continually during a predetermined period of time*...").

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to add the feature of preempting/ending a search after a predetermined period of time, as taught by Albornoz to the method and system of Welch in view of Li so that the resultant method and system would comprise preempting the method of claim 10 after a predetermined period of time. One would have been motivated to do so in order to run the search at regular intervals (Albornoz, Paragraph

0053, i.e., *In an alternative embodiment of the system (Fig. 15), the search process may run at regular intervals.*).

Referring to claim 15, aborting/preempting a search process or any other process after a predetermined amount of time (two seconds or three seconds or whatever amount of time) is taught by Albornoz as applied to claim 14.

Claims 22-23, 33-34, 41-42, 58-59, 66-67, 77-78, and 85-86 are rejected on the same basis as claims 14 and 15 respectively.

Claims 102-103 are essentially the same as claims 14 and 15 respectively except that it set forth the claimed invention as a program storage device readable by a machine rather than a method for incremental keyword search on a wireless user device and rejected for the same reasons as applied hereinabove.

Claims 107-108 are essentially the same as claims 14 and 15 respectively except that it set forth the claimed invention as a program storage device readable by a machine rather than a method for incremental keyword search on a wireless user device and rejected for the same reasons as applied hereinabove.

Claims 110-111 are essentially the same as claim 14 and 15 respectively except that it set forth the claimed invention as a program storage device readable by a machine rather than a method for incremental keyword search on a wireless user device and rejected for the same reasons as applied hereinabove.

Claims 121-122 are essentially the same as claim 14 and 15 respectively except that it set forth the claimed invention as a program storage device readable by a machine rather than a method for incremental keyword search on a wireless user device and rejected for the same reasons as applied hereinabove.

Claims 126-127 are essentially the same as claim 14 and 15 respectively except that it set forth the claimed invention as a program storage device readable by a machine rather than a method for incremental keyword search on a wireless user device and rejected for the same reasons as applied hereinabove.

Claims 129-130 are essentially the same as claim 14 and 15 respectively except that it set forth the claimed invention as a program storage device readable by a machine rather than a method for incremental keyword search on a wireless user device and rejected for the same reasons as applied hereinabove.

Claims 143-144 are essentially the same as claim 14 and 15 respectively except that it set forth the claimed invention as an apparatus for creating a keyword string database on a wireless user device rather than a method for incremental keyword search on a wireless user device and rejected for the same reasons as applied hereinabove.

Claims 148-149 are essentially the same as claim 14 and 15 respectively except that it set forth the claimed invention as an apparatus for creating a keyword string database on a wireless user device rather than a method for incremental keyword

search on a wireless user device and rejected for the same reasons as applied hereinabove.

Claims 156-157 are essentially the same as claim 14 and 15 respectively except that it set forth the claimed invention as an apparatus for incremental keyword search on a wireless user device rather than a method for incremental keyword search on a wireless user device and rejected for the same reasons as applied hereinabove.

Claims 161-162 are essentially the same as claim 14 and 15 respectively except that it set forth the claimed invention as an apparatus for incremental keyword search on a wireless user device rather than a method for incremental keyword search on a wireless user device and rejected for the same reasons as applied hereinabove.

Claims 175-176 are essentially the same as claim 14 and 15 respectively except that it set forth the claimed invention as an apparatus for incremental keyword search on a wireless user device rather than a method for incremental keyword search on a wireless user device and rejected for the same reasons as applied hereinabove.

Claims 180-181 are essentially the same as claim 14 and 15 respectively except that it set forth the claimed invention as an apparatus for incremental keyword search rather than a method for incremental keyword search on a wireless user device and rejected for the same reasons as applied hereinabove.

Claims 188-189 are essentially the same as claim 14 and 15 respectively except that it set forth the claimed invention as an apparatus for incremental keyword search

on a wireless user device rather than a method for incremental keyword search on a wireless user device and rejected for the same reasons as applied hereinabove.

Claims 193-194 are essentially the same as claim 14 and 15 respectively except that it set forth the claimed invention as an apparatus for incremental keyword search on a wireless user device rather than a method for incremental keyword search on a wireless user device and rejected for the same reasons as applied hereinabove.

8. Claim 44, 88, 132, 164, and 196 are rejected under 35 U.S.C. 103(a) as being unpatentable over Li in view of Welch and further in view of Vagonzzi (U.S. Patent Number 6499033).

Referring to claim 44, Li in view of Welch as applied to claim 1 is directed to a method for incremental keyword search on a wireless device and teaches the limitations: "receiving an input keyword string comprising one or more words comprising one or more symbols, each symbol representing the first symbol of a word in a search string" (Li, Column 8 Line 51 through Column 9 Line 36 in view of Welch, Paragraphs 0025-0026) and "saving input keyword string" (Li Figure 1B: ***Enter Unverified String*** & *No. of Groups to Hash 120; Compile Initial Candidate List 130; Li* column 6 Lines 10-28, i.e., *The unverified string might be generated by intensive OCR processing, from a relevant field (such as city name in an address;* **Particularly** Li Column 8 Lines 57-60, i.e., ***First, at step 120 of Fig 1B, an unverified string 20 is entered.*** Note that the

unverified string 20 is saved in the memory throughout all the processing steps of partitioning and hashing , among others, of Li's method).

However, Li in view of Welch does not explicitly disclose the limitation: "receiving a hierarchy, elements of the hierarchy comprising intermediate nodes and leaf nodes representing one or more keyword strings comprising one or more words comprising one or more symbols" and "searching the hierarchy bit vectors for a match with the input keyword string, the searching comprising, for each the elements of the hierarchy: (saving input keyword string is taught by Li) applying a logical "AND" operation to the bit vector of the element and a bit vector based at least in part on the input keyword string, the applying producing a result".

On the other hand, Vagonzzi teaches a database method and apparatus using hierarchical bit vector index structure comprising:

"receiving a hierarchy, elements of the hierarchy comprising intermediate nodes and leaf nodes representing one or more keyword strings comprising one or more words comprising one or more symbols" (Vagonzzi, Figure 2, Column 5 Line 44 through Column 6 Line 10, i.e. "The indexes 30 are actually collections of keys stored in a B-tree.");

"creating hierarchy bit vectors corresponding to the one or more keyword strings in the hierarchy" (Vagonzzi, Figure 2, Column 5 Line 44 through Column 6 Line 10, i.e. "The indexes 30 are actually collections of keys stored in a B-tree."););

"searching the hierarchy bit vectors for a match with the input keyword string" (Vagonzzi, Column 10 Line 40-65 , i.e. "Query Processing the Indexes"), "the searching

comprising, for each of the elements of the hierarchy: (saving the input keyword string is taught by Li); "applying a logical "AND" operation to the bit vector of the element and a bit vector based at least in part on the input keyword string" (Vagonzzi, Figure 2: Query Processor 36, i.e., RANG, **AND**, OR, NOT; Vagonzzi, Column 11, Line 1-27, i.e. " .... then searches the appropriate index for those target keys, starting with the lowest key....."), "the applying producing a result" (Official Note: a search always returns a result); "if the result is nonzero, removing from the input keyword string any words in the input keyword string that are prefixes of words in the element" (...If no key is found, a bit vector of all zeros is returned. If a matching key is found in the index, then the associated link is used to obtain a bit vector for that key...."); "if the input keyword string is empty, adding the element to a list of matched items" ((...If no key is found, a bit vector of all zeros is returned. If a matching key is found in the index, then the associated link is used to obtain a bit vector for that key...."); and "restoring the input keyword string; and rendering the list of matched items" (Vagonzzi, Column 11, Line 1-27).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to combine the method and system which employ both bit vectors and a tree hierarchy as taught by Vagonzzi with the method and system of Welch in view of Li so that the combined method and system would accommodate bit vectors in a tree hierarchy and logical searches into the trees could be performed. One would have been motivated to do so in order to "*provide a method and apparatus for managing large amounts of data in a manner that provides the following benefits: 1. Very fast*

query response; 2. Fast Update response; 3. Support for ....." (Vagonzzi, Column 3, Line 7-26).

Claim 88 is rejected on the same basis as claim 44.

Claim 132 is essentially the same as claim 44 except that it set forth the claimed invention as a program storage device readable by a machine rather than a method for incremental keyword search on a wireless user device and rejected for the same reasons as applied hereinabove.

Claim 164 is essentially the same as claim 44 except that it set forth the claimed invention as an apparatus for incremental keyword search on a wireless user device rather than a method for incremental keyword search on a wireless user device and rejected for the same reasons as applied hereinabove.

Claim 196 is essentially the same as claim 44 except that it set forth the claimed invention as an apparatus for incremental keyword search on a wireless user device rather than a method for incremental keyword search on a wireless user device and rejected for the same reasons as applied hereinabove.

9. Claim 197- 206 are rejected under 35 U.S.C. 103(a) as being unpatentable over Li in view of Welch and further in view of Ronchi et al., (U.S. Patent Number 6496836).

Referring to claim 197, Li teaches assigning groups based on frequency of bit vectors (Li, Column 7 Line 4-40, "groups") and "compares groups based on signature

vector" (Li, Column 9 Line 39 through Column 13 Line 62) and "presenting a result of the comparing to a user of the wireless user device" (Li in view of Welch). But Li in view of Welch does not explicitly disclose assigning at least one symbol to each group and comparing keywords based on the symbol (s). However, Ronchi et al. teaches a method and system for symbol-based memory language, wherein symbols are assigned to a plurality of groups (Ronchi et al, Column 8 Line 32-67 and Column 3 Line 39-44) and based on the symbol selected, a caller is directed to a particular group of communication handlers (Ronchi et al., Column 3 Line 39-44).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to add the feature of employing symbols to groups and using the symbol(s) to channel a caller to a group of handlers based on the symbol(s), as taught by Ronchi et al., to the method and system of Li, which compares bit-vectors which represent strings at least in part based on groups of different bit vector frequencies, so that the resultant method and system would comprise assigning at least one symbol to each group and comparing keywords based on the symbol (s). One would have been motivated to do so in order to "find a way to record information pertaining to their customers quickly, and to access this information consistently, without delay, and in a readily understandable format in order to best satisfy the expectations of their customers" (Ronchi et al. Column 2, Line 34-41) .

Referring to claim 198, Li in view of Welch and further in view of Ronchi et al. as discussed above in regard to claim 197 above discloses the invention as claimed. Li in

view of Ronchi et al. teaches the method of claim 197 wherein the plurality of groups corresponds with a telephone keyboard symbol grouping (Ronchi et al., Column 10 Line 1-15).

Claims 199-200 are rejected on the same basis as claims 197-198 respectively.

Claims 201-202 are essentially the same as claim 197-198 respectively except that the claims set forth the claimed invention as a program storage device readable by a machine rather than a method for comparing keyword strings on a wireless user device and rejected for the same reasons as applied hereinabove.

Claims 203-204 are essentially the same as claim 197-198 respectively except that the claims set forth the claimed invention as an apparatus for comparing keyword strings on a wireless user device rather than a method for comparing keyword strings on a wireless user device and rejected for the same reasons as applied hereinabove.

Claims 205-206 are essentially the same as claim 197-198 respectively except that the claims set forth the claimed invention as an apparatus for comparing keyword strings on a wireless user device rather than a method for comparing keyword strings on a wireless user device and rejected for the same reasons as applied hereinabove.

Response to Arguments

10. Applicant's arguments filed on January 12, 2009, have been fully considered but are not persuasive.

Referring to claim 1, Applicant argued that *"As Li discloses multiple signature vectors for a string, Li cannot be said to disclose "creating a single bit vector based at least in part on the each of the one or more candidate keyword strings..." as required by Claim 1"* (Applicant's argument, page 53 last paragraph).

Examiner respectfully disagrees all of the allegations as argued. Examiner, in his previous office action, gave detail explanation of claimed limitation and pointed out exact locations in the cited prior art. Examiner is entitled to give claim limitations their broadest reasonable interpretation in light of the specification. See MPEP 2111 [R-1] Interpretation of Claims-Broadest Reasonable Interpretation.

During patent examination, the pending claims must be 'given the broadest reasonable interpretation consistent with the specification.' Applicant always has the opportunity to amend the claims during prosecution and broad interpretation by the examiner reduces the possibility that the claim, once issued, will be interpreted more broadly than is justified. In re Prater, 162 USPQ 541,550-51 (CCPA 1969).

In response it is pointed out that Li discloses the limitation "*creating a single bit vector based at least in part on the each of the one or more candidate keyword strings*" as follows: **creating single bit vector based at least in part on the each of one or more candidate keyword strings" (**Li, Figure 2: *Fold to Signature Vector 210;* and

Column 6 Line 40 through Column 9 Line 35, i.e., *"non-positional bi-gram for the lexicon entry string 20"* and *The vector 22 is folded at step 210 by examining each sequential group of 8 bits and assigning it a 1 or 0 depending on whether any of the bi-grams in the group was previously "set" (had a value of 1)"*).

Applicant also argued that *claim 2 depends on claim 1. Claim 1 being allowable, claim 2 must also be allowable* (Applicant's argument, page 54 second paragraph).

In response, it is pointed out that since claim 1 is not allowable over Li in view of Welch, claim 2 is not allowable in view of its dependency from claim 1.

Referring to claim 13, Applicant argued that "*claim 13 as presently amended recites in part creating a single bit vector based at least in part on the input keyword (emphasis added). Thus, arguments made with respect to claim 1 apply here as well. Claim 1 being allowable, claims 13 must also be allowable* (Applicants' argument, page 54 third paragraph).

In response, as discussed with claim 1, Li in view of Welch clearly teaches "creating a single bit vector based at least in part on input keyword". As such, just as claim 1 is not allowable over Li in view of Welch, claim 13 is not allowable.

Applicant argued that "*claim 16 depends from claim 13. Claim 13 being allowable, claim 16 must also be allowable"* (Applicant's argument, page 54 fourth paragraph).

In response, it is pointed out that since claim 13 is not allowable over Li in view of Welch, claim 16 is not allowable in view of its dependency from claim 13.

Referring to claim 17, Applicant argued that *thus, arguments made above with respect to claim 1 apply here as well. Claim 1 being allowable, claim 17 must also be allowable* (Applicant's argument, page 54 last paragraph through page 55 first paragraph).

In response, as discussed with claim 1, Li in view of Welch clearly teaches "creating a single bit vector based at least in part on input keyword". As such, just as claim 1 is not allowable over Li in view of Welch, claim 17 is not allowable.

Referring to claim 21, Applicant argued that that *thus, arguments made above with respect to claim 1 apply here as well. Claim 1 being allowable, claim 21 must also be allowable* (Applicant's argument, page 55 second paragraph).

In response, as discussed with claim 1, Li in view of Welch clearly teaches "creating a single bit vector based at least in part on input keyword". As such, just as claim 1 is not allowable over Li in view of Welch, claim 21 is not allowable.

Applicant also argued that *claim 24 depends on claim 21. Claim 21 being allowable, claim 24 must also be allowable* (Applicant's argument, page 55 third paragraph).

In response, it is pointed out that since claim 21 is not allowable over Li in view of Welch, claim 24 is not allowable in view of its dependency from claim 21.

Referring to claim 25, Applicant argued that Li discloses determining the frequency of a combination of characters; Li does not disclose determining a relative frequency of use for a at least one symbol in a language (Applicant's argument, page 55 last paragraph).

In response, it is pointed out that Specification of Applicant's claimed invention defines "symbol" in paragraph 0008 of the U.S. Patent Application Publication 2005/0086234 as *"As the user type "w" in an input window, the system instantly responds with keyword strings having at least one keyword that stars with the symbol "w".* According to this definition, "symbol" in the claimed invention is equivalent to "character". Note that Li in Column 6 Lines 45-48 teaches "*all non-alphanumeric characters are mapped to a selected specific non-alphanumeric character (for example "?").* Apparently, Li teaches determining single characters such as non-alphanumeric characters in addition to determining combination of characters. As such, "frequency table" in Column 7 Lines 4-40 also determines single characters, that is, frequency of single characters. Therefore, Applicant's argument is moot.

Applicant additionally argued that *since Li does not teach determining a relative frequency of use for at least one symbol in a language, Li cannot teach assigning a statistical weighting to the at least one symbol based at least in part on a relative frequency of use of the at least one symbol as required by claim 25* (Applicant's argument, page 56 third paragraph).

In response, it is pointed, as discussed, Li teaches relative frequency of single characters (Li Column 6 Lines 45-48 and Li Column 7 Lines 4-40). As such, Li also teaches "assigning a statistical weighting to a symbol based on a relative use of the symbol" (Li, Column 7 Line 4-40, i.e., *A counter is accumulated….*).

Referring to claims 26, Applicant argued that *Bi-grams are not "at least one symbol in a language" as required by the claim. An the frequencies disclosed in Li are*

frequencies of bi-grams, not frequencies of symbols in a language" (Applicant's argument, page 57 first paragraph).

In response, it is pointed out that, as discussed with respect to claim 25 above, Li teaches determining frequencies of both single characters (Column 6 Lines 45-48) and bi-grams in Column 7 Lines 4-40 (i.e., "frequency table). As such, the argument is moot because Li teaches frequencies of symbols in a language.

Referring to claim 27, Applicant argued that "*contrary to the Examiner's statement, the cited references do not disclose or suggest wherein the relative frequency of use of symbols in the first character of words in the language*" (Applicant's argument, page 57, second paragraph).

In response it is pointed out that Li Teaches said limitation "wherein the relative frequency of use comprises the relative frequency of use of symbols in the first character of words in the language" (Li, Column 7 Line 4-40).

Referring to claims 28, Applicant argued that *the arguments above with respect to claim 25 apply here as well* (Applicant's argument, page 58 first paragraph).

In response, it is pointed out that the response to Applicant's argument with respect to claim 25 applies to Applicant's argument with respect to claim 28 as well.

Referring to claim 32, Applicant argued that *thus, arguments made above with respect to claim 1 apply here as well. Claim 1 being allowable, claim 32 must also be allowable for at least the same reasons as for claim 1"* (Applicant's argument, page 58 second paragraph).

In response, as discussed with claim 1, Li in view of Welch clearly teaches "creating a single bit vector based at least in part on input keyword". As such, just as claim 1 is not allowable over Li in view of Welch, claim 32 is not allowable.

Applicant argued that *claim 35 depends from claim 32. Claim 32 being allowable, claim 35 must also be allowable* (Applicant's argument, page 58 third paragraph).

In response, it is pointed out that since claim 32 is not allowable over Li in view of Welch, claim 35 is not allowable in view of its dependency from claim 32.

Referring to claim 36, Applicant argued that *the arguments made above with respect to claim 28 apply here as well. Claim 28 being allowable, claim 36 must also be allowable for the same reasons* (Applicant's argument, page 58 fourth paragraph).

In response, as discussed with claim 28, Li in view of Welch clearly teaches "creating a single bit vector based at least in part on input keyword" and "frequency of single characters (symbols)". As such, just as claim 28 is not allowable over Li in view of Welch, claim 36 is not allowable.

Referring to claim 40, Applicant argued that *the arguments made with respect to claim 21 apply here as well. Claim 21 being allowable, claim 40 must also be allowable* (Applicant's argument, page 58 fifth paragraph).

In response, it is pointed out that, as discussed above, claim 21 is not allowable. As such, claim 40 is not allowable.

Referring claims 45, 46, 57, 60, and 61, Applicant argued that *claims 45, 46, 57, 60, and 61 are similar to claims 1, 2, 13, 16 and 17 respectively. Claims 1, 2, 13, 16,and*

17 being allowable, claims 45, 46, 57, 60,and 61 must also be allowable (Applicant's argument, page 59 first paragraph).

In response, it is pointed that, as discussed above, claims 1, 2, 13, 16,and 17 are not allowable and claims 45, 46, 57, 60,and 61 are not allowable as well.

Applicant also argued that *claims 65, 68, 69, 70, 71, 72, 76, 79, 80, 84, 87, 90, 101, 104, 105, 106, 109, 112, 113, 114, 115, 116, 120, 123, 124, 125, 128, 131, 134, 142, 145, 146, 147, 150, 151, 152, 153, 154, 155, 158, 159, 160, 163, 165, 166, 174, 178, 179, 182, 183, 184, 185, 186, 187, 190, 191, 192, and 195 include limitations similar to Claims 18, 21, 16, 25, 26, 27, 28, 32, 16, 36, 87, 40, 16, 1, 2, 13, 16, 17, 18, 21, 16, 25, 26, 27, 28, 32, 16, 36, 37, 40, 43, 1, 2, 13, 16, 17, 18, 16, 25, 26, 27, 28, 32, 16, 36, 40, 16, 1, 2, 13, 16, 17, 21, 16, 25, 26, 27, 28, 32, 16, 36, 40, and 16, respectively. Claims 21, 16, 25, 26, 27, 28, 32, 16, 36, 87, 40, 16, 1, 2, 13, 16, 17, 18, 21, 16, 25, 26, 27, 28, 32, 16, 36, 37, 40, 43, 1, 2, 13, 16, 17, 18, 16, 25,26, 27, 28, 32, 16, 36, 40, 16, 1, 2, 13, 16, 17, 21, 16, 25, 26, 27, 28, 32, 16, 36, 40, and 16 being allowable, Claims 65, 68, 69, 70, 71, 72, 76, 79, 80, 84, 87, 89, 90, 101, 104, 105, 106, 109, 112, 113, 114, 115, 116, 120, 123, 124, 125, 128, 131, 133, 134, 142, 145, 146, 147, 150, 151,152, 153, 154, 155, 158, 159, 160, 163, 165, 166, 174, 177, 178, 179, 182, 183, 184, 185, 186, 187, 190, 191,192, and 195 must also be allowable for at least the same reasons (*Applicant's argument, page 59, second and third paragraphs).

In response, it is pointed since claims 21, 16, 25, 26, 27, 28, 32, 16, 36, 87, 40, 16, 1, 2, 13, 16, 17, 18, 21, 16, 25, 26, 27, 28, 32, 16, 36, 37, 40, 43, 1, 2, 13, 16, 17, 18, 16, 25,26, 27, 28, 32, 16, 36, 40, 16, 1, 2, 13, 16, 17, 21, 16, 25, 26, 27, 28, 32, 16,

36, 40, and 16 are not allowable, claims 65, 68, 69, 70, 71, 72, 76, 79, 80, 81, 84, 87, 89, 90, 101, 104, 105, 106, 109, 112, 113, 114, 115, 116, 120, 123, 124, 125, 128, 131, 133, 134, 142, 145, 146, 147, 150, 151,152, 153, 154, 155, 158, 159, 160, 163, 165, 166, 174, 177, 178, 179, 182, 183, 184, 185, 186, 187, 190, 191,192, and 195 are not allowable as well.

Referring to claims 3-9, 47-53, 91-97, 135-141 and 167-173, Applicant argued that *claims 3-9, 47-53, 91-97, 135-141, and 167-173 depend from Claims 1, 45, 89, 133, and 165, respectively, and thus include the limitations of claim 1, 45, 89, 133, and 165. The arguments made above with respect to claim 1 apply here as well. The 35 U.S.C. § 103(a) rejection of claim 1 based on Li in view of Welch is unsupported by the art, as each and every element as set forth in claim 1 is not found in Li in view of Welch. Therefore, the 35 U.S.C. § 103(a) rejection of dependent claims 3-9, 47-53, 91-97, 135-141, and 167-173 based on Li in view of Welch and further in view of Braun is also unsupported by the art. Thus, no prima facie case of obviousness has been established and the 35 U.S.C. § 103 rejection should be withdrawn* (Applicant's argument, Page 60 second paragraph).

In response, it is pointed that, as discussed with respect to claim 1 above, Li in view of Welch teaches each and every limitation of claim 1. As such rejections of dependent claims 3-9, 47-53, 91-97, 135-141, and 167-173 based on Li in view of Welch and further in view of Braun is fully supported by the prior art.

Applicant also argued that *Claims 14-15, 19-20, 22-23, 33-34, 38-39, 41-42, 58-59, 63-64, 66-67, 77-78, 82-83, 85-86, 102-103, 107-108, 110-111,121-122, 126-127,*

129-130, 143-144, 148-149, 156- 157, 161-162, 175-176, 180-181,188-189, and 193-194, the arguments made above with respect to the independent claims apply here as well. The 35 U.S.C. § 103(a) rejection of claims based on Li in view of Welch is unsupported by the art, as each and every element as set forth in the independent claims is not found in Li in view of Welch. Therefore, the 35 U.S.C. § 103(a) rejection of dependent claims 14-15, 19-20, 22-23, 33-34, 38-39, 41-42, 58-59, 63-64, 66-67, 77-78, 82-83, 85-86, 102-103, 107-108, 110-111,121-122, 126-127, 129-130, 143-144, 148-149, 156-157, 161-162, 175-176, 180-181,188-189, and 193-194 based on Li in view of Welch and further in view of Albornoz et al. is also unsupported by the art (Applicant's argument Page 60 third paragraph through page 61 first paragraph).

In response, it is pointed that, as discussed with respect to claim 1 above, Li in view of Welch teaches each and every limitation of claim 1. As such rejections of dependent claims 14-15, 19-20, 22-23, 33-34, 38-39, 41-42, 58-59, 63-64, 66-67, 77-78, 82-83, 85-86, 102-103, 107-108, 110-111,121-122, 126-127, 129-130, 143-144, 148-149, 156-157, 161-162, 175-176, 180-181,188-189, and 193-194 based on Li in view of Welch and further in view of Albornoz et al. is fully supported by the prior art.

Referring to claim 44, Applicant argued that *contrary to the Examiner's statement that Li in view of Welch and further in view of Vagonzzi does not disclose or suggest receiving from a user of a the wireless user device an input keyword string comprising one or more words comprising one or more symbols, each symbol representing the first symbol of a word in a search string* (Applicant's argument, page 61 third paragraph).

In response, it is pointed out that Li in view of Welch (as applied to claim 1) and further in view of Vagonzzi teaches *receiving from a user of a the wireless user device an input keyword string comprising one or more words comprising one or more symbols, each symbol representing the first symbol of a word in a search string (*Li, Column 8 Line 51 through Column 9 Line 36 in view of Welch, Paragraphs 0025-0026).

Still referring to claim 44, Applicant also argued that *nowhere does the cited portion of Vagonzzi disclose for each of the elements of a hierarchy, saving input keyword string* (Applicant's argument, page 61 fourth paragraph).

In response, it is pointed out that Li in view of Welch as applied to claim 1 is directed to a method for incremental keyword search on a wireless device and teaches the limitations: "receiving an input keyword string comprising one or more words comprising one or more symbols, each symbol representing the first symbol of a word in a search string" (Li, Column 8 Line 51 through Column 9 Line 36 in view of Welch, Paragraphs 0025-0026) and "saving input keyword string" (Li Figure 1B: ***Enter Unverified String*** *& No. of Groups to Hash 120; Compile Initial Candidate List 130; Li* column 6 Lines 10-28, i.e., *The unverified string might be generated by intensive OCR processing, from a relevant field (such as city name in an address;* **Particularly** Li Column 8 Lines 57-60, i.e., ***First, at step 120 of Fig 1B, an unverified string 20 is entered.*** Note that the unverified string 20 is saved in the memory throughout all the processing steps of partitioning and hashing , among others, of Li's method). Therefore Li in view of Welch and further in view of Vagonzzi would teach the limitation "for each of the element of a hierarchy, saving input keyword string" (Li Column 8 Line 51

through Column 9 Line 36, Li Figure 1B, and Li Column 8 Lines 57-60 in view of Vagonzzi Column 11, Line 1-27).

Still referring to claim 44, Applicant also argued that *nowhere does the cited portion of Vagonzzi discloses for each of the elements of a hierarchy, applying a logical "AND" operation to the bit vector of the element and a bit vector based on the input keyword string"* (Applicant's argument, page 62 second paragraph).

In response, it is pointed out that Vagonzzi teaches "*applying a logical "AND" operation to the bit vector of the element and a bit vector based on the input keyword string"" in* Figure 2: Query Processor 36, i.e., RANG, **AND**, OR, NOT; Vagonzzi, and in Column 11, Line 1-27, i.e. " .... then searches the appropriate index for those target keys, starting with the lowest key".

Applicant also argued that *Li in view of Welch and further in view of Vagonzzi does not disclose or suggest the searching comprising , for each of the elements of the hierarchy… if the result is nonzero, removing from the input keyword string any words in the input keyword string that are prefixes words in the element* (Applicants' argument, page 62 third paragraph).

In response, it is pointed out that Li in view of Welch and further in view of Vagonzzi teaches a searching method comprising , for each of the elements of the hierarchy… if the result is nonzero, removing from the input keyword string any words in the input keyword string that are prefixes words in the element (Vagonzzi, Column11 Lines 1-27, i.e., *if no key is found, a bit vector of all zeroes is returned).*

Applicant also argued that *nowhere does the cited portion of Vagonzzi disclose for each of the elements of a hierarchy, if an input keyword string is empty, adding the element to a list of matched items* (Applicant's argument, page 63 second paragraph).

In response, it is pointed out that Li in view of Welch and further in view of Vagonzzi teaches the limitation , *if an input keyword string is empty, adding the element to a list of matched items (*Vagonzzi, Column11 Lines 1-27, i.e., *if a matching key is found in the index, then the associated used to obtain a bit vector for that key).*

Applicant also argued that *nowhere dose the cited portion of Vagonzzi disclose for each of the elements of a hierarchy, restoring an input keyword string (*Applicant's argument, page 63 third paragraph).

In response, it is pointed out that Li in view of Welch and further in view of Vagonzzi teaches the limitation *restoring an input keyword string* (Vagonzzi, Column 11 Lines 1-77).

Applicant additionally argued that *claims 88, 132, 164, and 196 include limitations similar to claim 44. Claim 44 being allowable, claims 88, 132, 164,and 196 must also be allowable* (Applicant's argument, page 63 fourth paragraph).

In response, it is pointed out that since claim 44 is not allowable, claims *88, 132, 164, and 196* are not allowable as well.

Referring to claims 197-206, Applicant argued that *the arguments made above with respect to claim 25 apply here as well. Clam 25 being allowable, claims 197-206 must also be allowable* (Applicant's argument, page 63 last paragraph).

In response, it is pointed out that, as discussed with respect to claim 25 that claim 25 is not allowable, claims 197-206 are not allowable as well.

In view of the above, the examiner contends that all limitations as recited in the claims have been addressed in this Action. For the above reasons, Examiner believed that rejection of the last Office Action and current Office Action are proper.

Conclusion

11. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Contact Information

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dennis Myint whose telephone number is (571) 272-5629. The examiner can normally be reached on 8:30AM-5:30PM Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Breene can be reached on (571) 272-4107. The fax phone number for the organization where this application or proceeding is assigned is 571-273-5629.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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